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be obtained from the American Ethnological Society, Sub-Station 84, New York City.

THE department of railway engineering of the University of Illinois has recently erected a drop testing machine which is identical in design with the standard machine of the Master Car Builders' Association. This apparatus will be used in making impact tests of such materials as car couplers, wheels, axles, etc. It consists essentially of a spring-supported anvil weighing 20,000 pounds (upon which is placed the specimen to be tested), and a hammer weighing 1,640 pounds, which runs in vertical guides rising at either side of the anvil. This hammer may be dropped in these guides from any height up to 50 feet. The addition of this machine to the existing equipment of the College of Engineering of this institution renders it possible to make there tension, compression, bending and impact tests of all materials of construction, on specimens of the full size ordinarily met with in practise. Through the courtesy of Mr. A. W. Gibbs, the Pennsylvania Railroad Company furnished the drawings and loaned its patterns for the construction of this machine. The Cleveland, Cincinnati, Chicago & St. Louis Railroad Company, through its superintendent of motive power, Mr. William Garstang, has donated to the university its services in connection with the work of construction and assembling the machine, which was done at the Urbana shops of this company.

UNIVERSITY AND EDUCATIONAL NEWS

THE state legislature now in session has provided the University of Wisconsin with approximately \$2,500,000 for the next two years, beginning July 1. The permanent income of the university is supplied by a tax of two sevenths of a mill on each dollar of assessed valuation of the property of the state. This tax will yield the university approximately \$750,000 for the year 1909-10, and over \$800,000 for the year 1910-11. The sum of \$100,000 annually for the next two years was appropriated in addition to meet the needs of the growth of the institution not covered by the increase in the tax income fund. Besides this \$50,000 a year was given for books and

apparatus. The legislature also provided \$600,000 for buildings to be erected in the order of their greatest need during the next two years. This is a continuation of the building fund of \$200,000 a year for a period of three years. For extension work \$50,000 was appropriated for next year, and \$75,000 for the year following. An additional grant of \$30,000 a year was made for agricultural extension, and \$20,000 a year was provided for farmers' institutes.

MR. JOHN FRITZ, of Bethlehem, Pa., in whose honor a gold medal was founded on his eightieth birthday by the four great national engineering societies, has given \$50,000 to Lehigh University for an engineering laboratory.

DR. E. F. NICHOLS, professor of experimental physics at Columbia University, has been elected president of Dartmouth College, where he was head of the department of physics from 1898 to 1903.

AT the June meeting of the board of trustees of the University of Arkansas a college of agriculture was established. Dr. C. F. Adams, acting director of the Experiment Station, was promoted to the deanship and directorship of the college and station.

MR. ALFRED C. LANE has resigned his position as state geologist of Michigan to take effect on September 1. He will be in Houghton during most of the summer. After September 1 his address will be Tufts College, Mass.

H. E. JORDAN, Ph.D., adjunct professor of anatomy (in charge of histology and embryology) at the University of Virginia, has been promoted to the rank of associate professor.

DR. M. W. BLACKMAN (Harvard '05), of Western Reserve University, has been elected assistant professor of zoology in Syracuse University. He will succeed Mr. B. G. Smith, who has accepted the position of instructor in zoology in the University of Wisconsin.

MR. F. G. SPECK has been appointed instructor in anthropology at the University of Pennsylvania, not at the University of California, as was incorrectly stated in a recent issue of this journal.

At the commencement exercises of Lehigh University the following announcements were made: Robert W. Hall becomes lecturer on forestry as well as professor of biology; Barry MacNutt, assistant professor of physics, is made associate professor of physics; Percy Hughes, assistant professor of philosophy, psychology and education, becomes professor of philosophy and education in charge of the department; Vahan S. Babasianian, instructor in chemistry, becomes assistant professor; James Hunter Wily, instructor in physics, becomes assistant professor; R. J. Gilmore is appointed instructor in biology.

DISCUSSION AND CORRESPONDENCE

MINIMAL QUANTITIES OF FOOD PRESERVATIVES

A CURIOUS instance of a fallacious argument cast in pseudo-mathematical form appears in the evidence of Dr. Harvey W. Wiley before the Committee on Interstate and Foreign Commerce, House of Representatives, in February, 1906. The argument is repeated in more deliberate language (identical in the three) in Bulletin 84, Part II., of the Bureau of Chemistry, of the Department of Agriculture (1906), at p. 754, in *Foods and their Adulterations* (1907) at p. 38 and in the *Proceedings of the American Philosophical Society*, Vol. 47 (1908) at p. 326. As the latter publications are readily accessible to the scientific world, I shall quote only the informal statement of the argument before the committee of the house:

This is a graphic chart showing the comparative influence of foods and preservatives (Fig. 1). Of course we have to assume the data on which this chart is constructed. You will understand that.

We will suppose that a normal dose of a drug is nothing. We do not need it at all. Now imagine that the lethal dose of a drug—that is, the dose that will kill—is 100, and then we go to work and measure at three points—at 75, at 50 and at 25. These are points at which we can measure. We can not measure up towards the right there, because the line almost coincides with the basic line, and the deviation is so slight that no method of measurement that we know of could distinguish them.

I omit here some reference to an error in the diagram which appears to have been corrected before printing.

The lethal dose of that drug is 100. That is written up there on the left. I will just trace that. The normal dose of a drug in the case of a person in health is zero. Then if we use a little drug I can measure it here. I can measure it

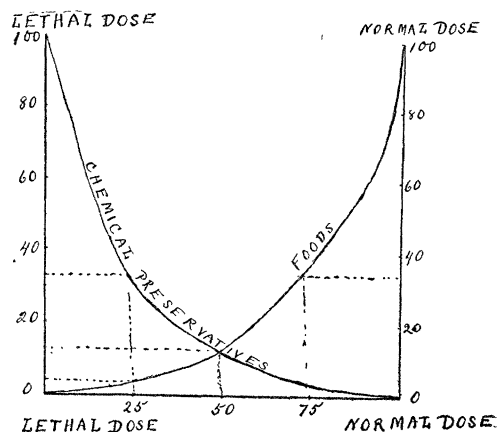


FIG. 1. Graphic Chart Representing the Comparative Influences of Foods and Preservatives.—Wiley.

again here (indicating) and I can measure it again here (indicating). Now from those three points I can construct a curve and calculate the lethal dose, which we will assume to be 100. That much drug would kill; no drug would not hurt at all.

The relative injury of a drug can be calculated mathematically from a curve constructed like that on experimental data, and I could tell you mathematically, by applying the calculus there, just what the hurtful value of that drug would be at an infinitely small distance from zero. You have doubtless, all of you, studied calculus, and you know how you can integrate a vanishing function. I used to know a good deal about calculus myself, and I could, by integral calculus, tell you the injurious power of a drug at an infinitely small distance from zero—that is, an infinitely small dose.

Now see what a contrast there is between a food and a drug.

The lethal dose of a food is none at all. That kills you; you are starved to death. The normal dose is what you eat normally, 100. I starve a man, and I measure the injury which he receives.